CIT 371 Lab 1: Learning the Linux GUI

You must use the Web Console for this lab assignment. See the “Student VM Access and Help Requests” document for information on accessing your VMs.

This is an introduction to using Linux, particularly the GUI. Answer the questions in steps 4 and 5. These *questions appear in italics*. Place your answer right after each question in this lab manual and highlight your answer in yellow text. In step 5 you will enter some commands using the command line interface. Commands are in **courier bold font**.

1. Connect to [**https://coivcenter.hh.nku.edu**](https://coivcenter.hh.nku.edu). NOTE: if you are doing this from off campus, you must VPN into the university first. Instructions for VPN-ing are provided separately. Enter your NKU user name using the notation **nku\*username*** and **password** (*username* is the portion of your email address before the @). In the left pane, you should see four icons. Click the **folding page** (for VMs and Templates) then expand **VxRail-Datacenter** followed by the ***semester***, your ***class***and your ***account***. You should find two VMs listed. Use the one titled **CIT371\_00x\_*username\_CentOS6*** (where *username* is your username) by clicking on it. In the right pane, a tab appears with this VM’s name. Toward the top of the pane, click the **Green Arrow** to power on the VM. Once the VM has booted, click ***Launch Web Console*** to be brought to the GUI login screen. There are several accounts. Select **Student** and enter the password **cit371**. You will be at the Gnome desktop, which looks something like figure 1.8 on page 16 of the textbook. NOTE: for your mouse and keyboard to work inside your VM, you must move the mouse into the GUI (the desktop) and then click the mouse. While the mouse cursor remains inside the GUI, anything you do will control your VM. Moving the mouse outside of the VM causes your mouse to revert back to your real computer.
2. Examine the Applications menu. What do you find under Accessories? What do you find under Internet? What do you find under Office? What do you find under System Tools?
   1. There is a list of tasks you can use ranging from archive manager all the way to take a screenshot. This looks to be like a very useful bar to use since it has a calculator, notes, a character bar and much more. You see internet sources ranging from Akregator down to Pidgin Internet Messenger, and as always it has Firefox. Underneath the Office tab you can see such things like draw, impress, and writer. Lastly under the system tools we can see your terminal that we work in, bug reporting tool, the system monitor, disk utility, and much more.
3. **Examine the Places menu**
4. Select **Computer**. Using the file manager, double click on **Filesystem**. A new window appears labeled “/”. What does / refer to? What directories do you find? **Double click on bin** (open this directory). Scroll down and you will see some programs whose names match commands you may have used before like cd, ls, rm. This directory contains executable programs. **Close the bin window**. From the / window, **open etc**. Scroll down and you will see this directory contains subdirectories and then below them different types of files. These are primarily text files so they use a different type of icon than what you saw in /bin. Scroll down until you find the file passwd and **double click** on it. This opens the file in an application. What program opened it? What are the contents of the passwd file? **Close this file**. **Close the “etc” and “/” windows**. **Close the Computer window**.
   1. The “/” is referred to as the root, the directories that I find are bin, boot, sys, var, usr, and much more. The program that was opened was gedit, the contents of the passwd file is to store passwords and logins to said directories.
5. From the Places menu, select **Home Folder**. This is Student’s home (/home/Student). You will see a number of directories already set up. If you are familiar with Windows, you will see users are given initial folders similar to what a user gets in Windows. Two directories have already been populated with files and subdirectories, DUMMY-DIRECTORY and FILES. These two directories will be used later in the semester in various ways. Open FILES and you will see 3 text files. **Close this window**. **Open DUMMY-DIRECTORY**. You will see this directory has both text files and subdirectories. **Close DUMMY-DIRECTORY**.
6. **Examine the System menu**
7. Select **Preferences**. Select **File Management**. Explore the pop-up window choices. **Close this window**. Under **Preferences**, select **Network Connections**. You will find two devices here. We will be using eth5 (or eth3 if your VM does not have eth5 and has eth3 instead). **Select it and then select Edit…** Make sure Connect automatically and Available to all users are both selected (if not, **select both check boxes**) and select **Apply**. Only root can make this change, an Authenticate window appears. **Enter the root password** (cit371) and select **Authenticate**. **Close the Network Connections window**.
8. Select **Administration**, explore each option. Some require authentication as root (enter the password is cit371 and select **Authenticate**). *Which ones require authentication?* Others will require authentication to make changes. **After opening each GUI tool**, see what it does and then **close it**. When you reach Software Update, you will be given a list of updates waiting for you. *How many updates are waiting?* If you have, install these updates. You do not have to but it is worth doing. When you reach the Firewall Configuration tool, **if it is disabled, enable it**. When you reach Users and Groups, *what Users are listed and what UIDs (user IDs) do they each have?* Note that when we learn how to create users later in the semester, we will primarily use the command line. This program by default does not come with RedHat 7 (which we will switch to later in the semester) and so you will have to install it.
   1. The administration options that require a password is authentication and firewall configuration.
   2. When I opened up my software updates, there was zero updates available.
   3. Student (user ID 501), zappaf (user ID 502), foxr (user ID 503).
9. In the desktop area away from any icon, **right click** and select **Open Terminal**. This opens a terminal window. Note that opening the terminal window in this way automatically places you in the Desktop subdirectory of the current user. You can also open a terminal by selecting **Applications** 🡪 **System Tools** 🡪 **Terminal**, which opens you in the user’s home directory, but not within the Desktop subdirectory.
10. *What is provided as your prompt?*
    1. [Student@CentOS6Template ~] $
11. Enter the command **pwd**. This tells you your current working directory. *Where are you?*
    1. /home/Student
12. Enter the command **ls**. *What do you see?* 
    1. Desktop, Downloads, FILES, Pictures, Templates, Documents, DUMMY-DIRECTORY, Music, Public, Videos.
13. Enter the command **ls –l**. *What do you see? How does this one differ from ls?*
    1. You see all the long listing of the directories, and they are the extended list which gives the time last modified or created, the size, the date, the permissions, and much more compared to just the name in the ls.
14. Type **cd ..** to move up to your home directory. *What does your prompt look like now?*
    1. [Student@CentOS6Template home] $
15. Type **ls –l**. You should see nothing but directories (these are printed in blue font). Type **ls –al**. *What appears now that didn’t appear with ls –l?* Don’t list the differences, *but what do all the new items have in common?*
    1. The . and .. appear compared to the ls -l command. The new items that appeared have in common the periods and are located under the root directory.
16. Type **who** and **whoami** (separately). *What is the difference between the two?*
    1. The whoami command tells you the username in which you are working in, while the who command gives the list of the users who are working on the machine you are working on.
17. Type **cd ~zappaf**. *What happens to your prompt?* Type **ls**. *What do you see?*
    1. This changed what directory I was in, we are now in [Student@centOS6Template zappaf]. When given the command ls we can see the directories in the zappaf file which is Desktop, Downloads, GENEIS, Music, Public, VDGG, ZAPPA, Documents, ECHOLYN, IQ, Pictures, Templates, Videos.
18. Enter **cd IQ**. *What happens? Why?* Type **ls IQ**. *What happens?*
    1. Permission denied, and permission denied. We are not allowed access to these files and is out of our permission. Since we are not the root user we cannot have access to these files.
19. Repeat the two commands (cd and ls) on VDGG. *What happens in each case? Why?*
    1. We are not allowed to change directories into the VDGG, and we also see limited files in VDGG that we can access most being now allowed to access. This is because we don’t have access to these files being in the zappaf directory.We would need to be the root user to access these files.
20. Type **su**. This is the switch user command. With no parameter, it switches you to root. Enter the root password (cit371). Your prompt changes. *What is it now?*
    1. [root@centOS6Template zappaf] #
21. As root you can pretty much do anything. Type **su zappaf**. As root, you are now switching to zappaf. As zappaf, you have access to the directories that you didn’t in i and j. Type **ls IQ** to make sure. *What does your prompt say now?*
    1. [zappaf@centOS6Template ~] $
22. Type **exit** to return to root. Type **passwd Student**. This will allow you to change Student’s password. Use **cit371** as the password. *What warnings did you receive?* Retype **cit371** to confirm it. Type **exit** to leave root and resume as Student. As Student, type **su zappaf**. This time, because you are not root, you are asked for zappaf’s password, which is also cit371. Type **exit** to leave zappaf and resume as Student.
    1. You receive two waring messages which are, BAD PASSWORD: is it based on a dictionary word, and BAD PASSWORD: is too simple.
23. Close the terminal window. You can do this by typing exit, selecting Close Window from the File menu, or selecting the x in the upper right hand corner.
24. In the upper right hand corner, select **Student** and a drop-down menu appears with selections of Account Information, Lock Screen, Switch User and Quit… Switch User allows you to switch user similar to su but you are switching the user of the GUI. Quit… allows you to either log out or switch user. You can also log out under System. Instead, under System, **select Shut Down…** and from the pop-up window, **Shut Down**. In a real computer, you would probably want to log out but here, this shuts down your VM. You do not need to shut down your VM when not using it, but it will free up resources for other students. Your IP address may change after shutting down and restarting your VM, so you will have to find it again the next time you start the VM. **Disconnect from the VPN if you are using it.**

Your lab submission will be this updated lab manual with your answers embedded in this document. Please also highlight your answers in yellow.